



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/944,546	08/31/2001	James Grey	5150-50100	3042

35690 7590 11/09/2004

MEYERTONS, HOOD, KIVLIN, KOWERT & GOETZEL, P.C.
P.O. BOX 398
AUSTIN, TX 78767-0398

EXAMINER

DUNCAN, MARC M

ART UNIT PAPER NUMBER

2113

DATE MAILED: 11/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/944,546

Applicant(s)

GREY, JAMES

Examiner

Marc M Duncan

Art Unit

2113

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 April 0819.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-20 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 31 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____

FINAL REJECTION

Status of the Claims

Claims 1-8, 11-16 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meth et al. in view of Hansen.

Claims 10 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Meth and Hansen as applied to claims 1 and 11 above, and further in view of Shirakihara et al.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Meth and Hansen as applied to claim 1 above, and further in view of Stiffler.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-8, 11-16 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meth et al. in view of Hansen.

Regarding claim 1:

Meth teaches executing a program on a computer system in the entire document.

Meth teaches performing one or more snapshots of the execution of the program, wherein each snapshot is performed at a particular point during execution of the program in col. 1 lines 52-55.

Meth teaches wherein, for each snapshot, performing the snapshot comprises storing information usable to re-start execution of the program from the point at which the snapshot was performed in col. 1 lines 55-57.

Meth does not explicitly teach the process being a test executive sequence. Meth does, however, teach a program executing on a computer.

Hansen teaches the program being a test executive sequence in the entire document.

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the test executive sequence of Hansen with the method of checkpointing a program of Meth.

One of ordinary skill in the art at the time of invention would have been motivated to combine the teachings because Meth teaches checkpointing a computer program. Meth teaches that checkpointing allows the computer program to be restarted from a checkpoint, rather than from the beginning, in the case of a failure during execution. Hansen teaches a specific type of computer program that could be utilized with the checkpoint method of Meth to provide a reliable, failure-tolerant test executive sequence.

Regarding claim 2:

Meth teaches stopping execution of the test executive sequence after a particular snapshot is performed in col. 1 lines 55-57.

Meth teaches re-starting execution of the test executive sequence from the point at which the particular snapshot was performed in col. 1 lines 55-57.

Meth teaches wherein said re-starting execution of the test executive sequence comprises using the stored information of the snapshot to restore an execution environment of the computer system so that the test executive sequence can execute correctly from the point at which the particular snapshot was performed in the Abstract lines 7-8 and lines 14-16.

Regarding claim 3:

Meth teaches wherein said restoring the execution environment of the computer system comprises using the stored information of the snapshot to re-create a stack frame of the computer system in col. 3 lines 3-5 and col. 4 lines 41-46.

Regarding claim 4:

Meth teaches wherein said re-creating the stack frame comprises placing data on the stack frame so that the stack frame is in a state as if execution of the test executive sequence had run to the point at which the particular snapshot was performed in col. 3 lines 3-5 and col. 4 lines 41-46.

Regarding claim 5:

Meth teaches wherein said restoring the execution environment of the computer system comprises making the execution environment of the computer system

substantially the same as when the particular snapshot was performed in col. 4 lines 34-55.

Regarding claim 6:

Meth teaches wherein said storing the information comprises persistently storing the information in Fig. 12, col. 12 lines 26-27 and col. 13 lines 4-6.

Regarding claim 7:

Meth teaches wherein said storing information comprises storing one or more of: a variable value; a property value in col. 6 lines 32-35.

Regarding claim 8:

Hansen teaches wherein the test executive sequence comprises a plurality of steps in the entire document.

Meth teaches wherein the points at which the snapshots are performed correspond to steps in the test executive sequence in col. 1 lines 52-55. The teaching of capturing intermediate results of Meth is equivalent to snapshots corresponding to execution steps.

Regarding claim 11:

Claim 11 is rejected as the computer program product storing program instructions for performing the method of claim 1.

Regarding claim 12:

Claim 12 is rejected as the computer program product storing program instructions for performing the method of claim 2.

Regarding claim 13:

Claim 13 is rejected as the computer program product storing program instructions for performing the method of claim 3.

Regarding claim 14:

Claim 14 is rejected as the computer program product storing program instructions for performing the method of claim 6.

Regarding claim 15:

Claim 15 is rejected as the computer program product storing program instructions for performing the method of claim 7.

Regarding claim 16:

Claim 16 is rejected as the computer program product storing program instructions for performing the method of claim 8.

Regarding claim 18:

Meth teaches a processor in Fig. 1A.

Meth teaches a first memory medium storing a computer program in Fig. 1A.

Meth teaches wherein the processor is operable to execute the computer program in the entire document.

Meth teaches wherein the processor is operable to perform one or more snapshots of the execution of the computer program, wherein each snapshot is performed at a particular point during execution of the computer program in col. 1 lines 52-55.

Meth teaches wherein, for each snapshot, performing the snapshot comprises storing information usable to re-start execution of the computer program from the point at which the snapshot was performed in col. 1 lines 55-57.

Meth does not explicitly teach the process being a test executive sequence. Meth does, however, teach a program executing on a computer.

Hansen teaches the program being a test executive sequence in the entire document.

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the test executive sequence of Hansen with the method of checkpointing a program of Meth.

One of ordinary skill in the art at the time of invention would have been motivated to combine the teachings because Meth teaches checkpointing a computer program. Meth teaches that checkpointing allows the computer program to be restarted from a checkpoint, rather than from the beginning, in the case of a failure during execution. Hansen teaches a specific type of computer program that could be utilized with the checkpoint method of Meth to provide a reliable, failure-tolerant test executive sequence.

Regarding claim 19:

Meth teaches a second memory medium providing a persistent storage means in Fig. 12.

Meth teaches wherein said storing information comprises persistently storing the information on the second memory medium col. 12 lines 26-27 and col. 13 lines 4-6.

Regarding claim 20:

Meth teaches executing a program on a computer system in the entire document.

Meth teaches performing one or more snapshots of the execution of the program, wherein each snapshot is performed at a particular point during execution of the program in col. 1 lines 52-55.

Meth teaches wherein, for each snapshot, performing the snapshot comprises storing information usable to re-start execution of the program from the point at which the snapshot was performed in col. 1 lines 55-57.

Meth does not explicitly teach the process being a test executive sequence hierarchy. Meth does, however, teach a program executing on a computer.

Hansen teaches the program being a test executive sequence hierarchy in the entire document.

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the test executive sequence hierarchy of Hansen with the method of checkpointing a program of Meth.

One of ordinary skill in the art at the time of invention would have been motivated to combine the teachings because Meth teaches checkpointing a computer program. Meth teaches that checkpointing allows the computer program to be restarted from a checkpoint, rather than from the beginning, in the case of a failure during execution. Hansen teaches a specific type of computer program that could be utilized with the checkpoint method of Meth to provide a reliable, failure-tolerant test executive sequence hierarchy.

Claims 10 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Meth and Hansen as applied to claims 1 and 11 above, and further in view of Shirakihara et al.

Regarding claims 10 and 17:

The teachings of Meth and Hansen are outlined above.

Meth and Hansen do not explicitly teach wherein the snapshots are performed periodically according to a particular time interval. Meth and Hansen do, however, teach checkpointing at particular intervals.

Shirakihara teaches wherein the snapshots are performed periodically according to a particular time interval in col. 1 lines 22-27.

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the particular interval teaching of Meth and Hansen with the time intervals of Shirakihara.

One of ordinary skill in the art at the time of invention would have been motivated to combine the teachings because Shirakihara discloses that this is a conventional method of performing checkpointing.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Meth and Hansen as applied to claim 1 above, and further in view of Stiffler.

Regarding claim 9:

The teachings of Meth and Hansen are outlined above.

Meth and Hansen do not explicitly teach receiving user input specifying criteria for when to perform the snapshots. Meth and Hansen do, however, teach performing

snapshots at particular intervals and the user specifying the sequence of various actions during the test execution.

Stiffler teaches receiving user input specifying criteria for when to perform the snapshots in col. 2 lines 44-47.

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the user input teachings of Stiffler with the checkpointing and user input teachings of Meth and Hansen.

One of ordinary skill in the art at the time of invention would have been motivated to combine the teachings because Stiffler teaches that the application programmer traditionally must determine when take a checkpoint, i.e. specifying criteria for when to perform a checkpoint. This satisfies an inherent requirement of Meth and Hansen, who require the user to specify the sequence of the test.

Response to Arguments

Applicant's arguments filed 8/19/04 have been fully considered but they are not persuasive.

In response to applicant's argument concerning the 35 USC 101 rejection, the amendment to the claims was sufficient to overcome the rejection and, accordingly, the rejection has been removed.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the

references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, one of ordinary skill in the art, presented with the two cited references, would be motivated due to motivation provided by Meth as to the benefits of checkpointing programs in order to make them fault tolerant and able to recover efficiently. See the rejection above.

In response to applicant's argument that there is no reasonable expectation of success, the examiner respectfully disagrees. Applicant argues that the Meth reference teaches a parallel program and the Hansen reference provides no teaching, evidence, suggestion or motivation to use such a parallel structure as outlined in Meth. On the contrary, Meth defines a parallel program as a number of processes that are independently executed on one or more processors. In an embodiment of the invention, pictured in Figure 1B, Meth describes the invention as being implemented on a plurality of computing units, for example UNIX workstations, connected via a connection 110. Microsoft's Computer Dictionary, Third Edition, defines distributed processing as "a form of information processing in which work is performed by separate computers linked through a communications network." Hansen, which applicant argues provides no teaching, evidence, suggestion or motivation of the use of such an embodiment as described by Meth, states in col. 3 lines 19-20, "We have also recognized the desirability of having a distributed tester architecture." In col. 3 lines 38-40, Hansen teaches, "It would also be desirable to have a tester that can be easily adapted to a distributed tester architecture." In col. 3 lines 55-56, Hansen teaches, "Yet another

object of the invention is to provide a tester that can be easily adapted to a distributed tester architecture.” It can clearly be seen, therefore, that Hansen contemplated, and in fact desired, to have the invention practiced on a distributed processing architecture. And it can also clearly be seen that the definition of a distributed processing architecture, as given by Microsoft, is equivalent to that described by Meth in Fig. 1B and the specification in col. 5 lines 21-39. The examiner therefore disagrees with applicant’s assertion that there is no reasonable expectation of success. The rejection will not be removed.

In response to applicant’s arguments that the proposed modification would change the principle of operation of Hansen, the examiner disagrees. Attempting to attack references individually is not a valid argument for nonobviousness. Applicant has attempted to argue that the principle of operation is changed because Hansen does not teach that the program can be resumed from any point at which execution was halted. This is the very reason that a combination of references was necessary and to declare nonobviousness because a single reference does not teach all of the claim limitations would fly in the face of the purpose of 35 USC 103.

In response to applicant’s arguments that the combination would render Hansen unsatisfactory for its intended purpose, the examiner respectfully disagrees. Applicant again relies upon the assertion that Hansen cannot be combined with Meth’s parallel program. See the response to the reasonable expectation of success argument outlined above.

In response to applicant's arguments that the references are nonanalogous art, the examiner respectfully disagrees. As applicant is certainly aware, "the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned" as stated in the MPEP 2141.01(a). The references cited and relied upon are clearly pertinent to the particular problem with which the inventor was concerned, namely checkpointing a test executive. Furthermore, as shown in the responses to arguments contained above, the structure and function is not sufficiently different so as to preclude the combination of the references. In fact, the references contain teachings that would clearly indicate the contemplation of, and desirability for, such a combination. See above. The rejections will not be removed.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.


Art Unit: 2113

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc M Duncan whose telephone number is 571-272-3646. The examiner can normally be reached on M-T and TH-F 6:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Beausoliel can be reached on 571-272-3645. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

md


ROBERT BEAUSOLIEL
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100